DOCUMENT RESUME

ED 032 920 PS 001 593

[The Juniper Gardens Parent Cooperative Nursery.] Final Progress Report for OEO CAP Grant CG-8474-A/O.
Juniper Gardens Children's Project, Kansas City, Mo.
Spons Agency-Office of Economic Opportunity, Washington, D.C. Community Action Program.
Pub Date 31 Aug 68
Note-38p.
EDRS Price MF-$0.25 HC-$2.00
Descriptors-Class Management, *Compensatory Education Programs, Mothers, *Parent Participation, *Preschool Programs, *Program Descriptions, *Program Evaluation, Tutorial Programs
Identifiers-Head Start, Peabody Picture Vocabulary Test, PPVT

Thirty children and their mothers from a poverty area of Kansas City enrolled in a Head Start parent cooperative nursery school. The mothers actively participated in a parent-training program consisting of tutorial training in which a series of lessons designed to teach preacademic concepts and skills to the children was presented to the mothers. In lessons on classroom management the mothers learned to manage pupils and to provide good social learning experiences in group situations. The tutorial curriculum included 150 lessons covering primer level skills. Initially, mother responses to children indicated high rates of inappropriate tutorial behavior. The mothers were then coached to praise correct answers and to help children before they made mistakes. Because these mothers exhibited little skill in maintaining orderly, productive play with groups of children, a "Switching System" was introduced in which boundaries of activity areas were defined and children were required to complete an academic task before moving to another area. As a result, a quiet, well-ordered environment was established. There are indications that behavioral deficits in poor children can be minimized by providing their mothers with limited teaching and management skills using positive reinforcement. (DO)

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FINAL PROGRESS REPORT FOR OEO CAP GRANT
CG-8474 A/O
September 1, 1967 - August 31, 1968

INTRODUCTION

The Juniper Gardens Parent Cooperative Nursery began operation on September 18, 1967, following a period of staff training and preparation. Thirty poverty area children and their mothers were enrolled in the sessions held from 8:30 a.m. to 11:30 a.m. four days each week. The mothers participated actively in the parent-training program which resulted in modifications in their teaching behaviors as described in the body of this report. The demonstration activities designed to make knowledge of the methods being developed available to a wider audience locally, regionally and nationally constituted an important facet of the program.

THE PARENT TRAINING PROGRAM

A description of the parent training program, research results and demonstration activities is given below:

As described in the project proposal, the mothers were divided into three groups of ten. Each group participated in the preschool sessions on a three week rotation basis. The program consisted primarily of tutorial training in which a series of individual lessons designed to teach pre-academic concepts and skills were presented the children by the mothers, and classroom management in which group activities designed to allow mothers to learn to manage pupils and to provide good social learning experiences in group situations.

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Tutorial Training

The tutorial "curriculum" consisted of lessons which cover the pre-academic and primer level skills normally emphasized in preschool and kindergarten. The 150 lessons were, however, especially designed to be used in a one-to-one teaching situation by the mothers of Headstart children. The lessons provide the structure for training mothers in teaching techniques and provide direct contact with material their children should be learning.

Investigations carried out the previous year had indicated that mothers of the Coop children exhibited high rates of inappropriate tutoring behavior. Low rates of praise were usual while high rates of saying "No" and nagging were common. It was found that praise could be increased by giving the mother feedback by turning on a light whenever she correctly praised a child for making a correct response.

At the beginning of this year's program an assessment of the pre-training level of praise by the first group of mothers as they taught individual lessons to their own and other children revealed no significant difference in praise rates. Furthermore it was found that demonstration lessons taught to a child by an inexperienced teacher resulted in praise rates within the range obtained from the previous year's mothers after several weeks of training.

Adding the light feedback contingent upon praise did not significantly increase the mother's rates of praise. When these findings were replicated with the two subsequent groups it was concluded that the initial demonstration by an experienced teacher with its emphasis on contingent praise was sufficient to establish the mother's use of social reinforcement in teaching children.

Further attempts to increase praise rates by awarding bonuses (dishes) for praise resulted in no significant increase. The data revealed that mothers were already praising nearly 100% of the correct responses and therefore the only way that appropriate praise could increase was to elevate the frequency of the child's correct responding. As the latency of the child's correct responding to the mother's questions was minimal, it appeared that the actual limitation of the speed and efficiency of the teaching situation was in the mother's skills at presenting the lesson materials.

Careful comparisons were then made of teacher-pupil interactions where, on one hand, teachers were professionally trained "master teachers," and, on the other hand were the Coop mothers. This analysis revealed that while praise rates by both groups was virtually the same in both instances, extreme differences were noted in the manner in which the two types of teachers presented the materials and set the occasion for child responding. The Coop mothers asked a question, praised the response if correct, repeated the question if there was either no response or if the response given was incorrect. The master teachers, on the other hand, employed the use of partial answers, or prompts, if their original questions did not elicit a correct response. Indeed, most of the master teachers' eliciting comments took the form of prompts while none of the Coop mothers were observed to use any prompts. In light of these observations the training program was

modified and major attention was given to developing the mothers' skills at presenting discriminative stimuli in the teaching situation.

A first draft of the tutoring procedures (A Program for Teaching Mothers to be Classroom Tutors) is attached to this report.

The development of the procedure will continue during the coming year as will the experimental analysis of its critical elements.

The effects of the tutoring procedures were illustrated by an analysis of the teaching behavior of one of the mothers. This analysis of the transcripts of teaching sessions of one of the mothers revealed that in three tutorial sessions the percentage of responses classed as saying, "No," nagging or asking questions was reduced from 60% to 16% and then 0%. In the same sessions praise was increased from 0% to 29% and 27% of the tutoring responses in each of the sessions, while prompts increased from 38% to 42% and then to 67%.

The mother made 53 tutoring responses in the first session. The child failed to give any correct responses (0%). By the end of the third session, however, when the mother was providing both prompts and praise at high rates the child was responding correctly to 33 1/3% of the mother's tutoring responses.

CLASSROOM MANAGEMENT

During the first year of the preschool's operation it became apparent that the mothers had little skill in maintaining orderly, productive play with groups of children in the less structured conditions of the free-activity periods. This was potentially detrimental to the program because it could result in the children's not gaining the desired skills from concentrated and consecutive activity with preschool materials and it could promote the occurrence of disruptive behavior. The mothers usually responded to such behavior in a harsh fashion, shouting at or shaking the offending child or otherwise threatening or punishing him. Not only were these responses ineffective in reducing the disruptive behavior, but they created a poor atmosphere for the preschool and were directly contrary to the orientation of the training. This obviously had to be overcome, but the techniques for managing groups of children to promote learning cannot be taught quickly. The problem was that a cooperative preschool program run primarily by non-professional mothers requires a group management system more structured than that which might be utilized by trained professional teachers.

Consequently a system was developed which allows untrained or partially trained mothers to maintain groups of children in orderly, productive activities while giving the children freedom to move from activity to activity as they do in most preschools.

The Switching System: The essentials of this system are 1) the explicit definition of the boundaries of each activity area (e. g., block area, manipulative toy area, creative materials area, pre-reading area) and 2) the use of a "switching task" as a requirement for moving from one area to another.

The children come in from the play yard a few at a time at the beginning of the free-activity periods. They go to a central table where they complete a simple matching problem or academic task such as arranging numerals in sequence or matching upper and lower-case letters. When a child completes the problem and raises his hand, a mother comes over, helps him correct or approves of his work, and allows him to select a ticket from an array on the ticket board. This ticket "admits" him to an activity area. The child may stay in that area (which is supervised by a mother learning to use social reinforcement to maintain appropriate use of the materials) as long as he wishes. However, to go to another area, he must return his ticket to the central table and complete another problem to obtain a ticket for the new area. The tickets are of different colors, each corresponding to a particular area (red for the creative area, green for the block area, etc.).

The Mothers as Researchers: During this past year the empirical effects of the switching task requirement were assessed by the mothers themselves, who were taught to obtain and analyze the appropriate data. A mother was seated at the entrance to each activity area with a roster of all the children's names and a 60-minute kitchen timer. As each child entered or left the area the entry and exit times were recorded on the roster by glancing at the timer. Since these are count-down times, a child might be recorded as entering an area at 42 and leaving it at 34. This proved much easier for the mothers to deal with than regular clock time which might show the same child to have entered at 8:56 and left at 9:04.

Since observers were also stationed at the switching table, a complete minute-by-minute record was produced showing the activity of each child throughout the data hour each day.

For one month the mothers observed the movement of the children from area to area when there was no switching task requirement. Their records during that time revealed that the children average 23 minutes in each they entered. In other words, they switched areas nearly three

times during the initial hour of each day.

Following this baseline period, the switching task was introduced. The children were still free to move from one area to another as often as they wished and at their own initiative; now, however, they had to pause briefly (about five minutes) and complete an instructional activity. As a result, within five days most of the children were spending nearly an hour in the area of their first choice. The general appearance of the classroom during the five days when the switching task was in use was that of a quiet well ordered classroom, more typical of a fifth-grade than of a preschool. This was accomplished without any punishment, and no observable decrease in enthusiasm of the children for their area activities.

In order to make sure that the changed appearance of the classroom was actually a function of the introduction of the switching task, the original classroom conditions were restored. Over the next five days without the switching task the nonproductive activity level of the class rose to its previous level. The children were switching from one area to another about three times an hour and were spending, on the average, 23 to 27 minutes in each area. (See Fig. 1 and 2).

It should be noted that the Cooperative Staff does not feel that there is any undue problem created by the children's penchant for bouncing from one area to another. The investigation was conducted in order to determine whether nonpunitive procedures could be carried out which would stabilize the activity in the classroom. Some degree of stability is desirable if the Cooperative is to initiate a more ambitious program of academic training for the children. There are many instructional situations that are not intrinsically reinforcing until the child has gained some degree of mastery over the material. The switching task may be employed during that early phase so that the teacher may depend upon the continued attention of a child without having to coax and plead that he stay and finish the assignment before running off to another area.

Increased Academic Emphasis: During the last quarter of the school year an increased emphasis was placed on engaging the children in a variety of pre-academic and academic activities (rhyming, visual discrimination, printing, improving listening skills). This increase on academic emphasis occurred partly in response to the wishes of the parents themselves. While they appreciated the utility of the more traditional preschool regiman focusing on development of cooperative play and other social skills, they were eager to provide their children with specific academic skills in order to improve their chances for success in public schools.

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To support the academic emphasis a token system was initiated and proved effective in providing increased incentive for engaging in academic oriented activitied activities.

PROGRESS OF THE CHILDREN

By the end of the year, the mothers at the coop were quite skillful both at tutoring and at managing group activities in academic and non-academic areas. Almost all of the children were able to name colors, identify rhyming words, count objects, read some numbers and some letters, print their names, participate in group activities, follow directions, and respond appropriately to the questions and comments of the adults in the classroom.

Pupil progress was indicated by results obtained on the Peabody Picture Vocabulary Test, given before school started in September and again during the last month of school. The children showed an average gain of 23.5 I.Q. points and a one year, 10 months increase in mental age. Every child showed a net gain in I.Q. while the range of I.Q. points changed from 23 to 92 in September, to from 53 to 115 in June.

SUMMER ACTIVITIES

In response to an expressed interest by the coop mothers the program was extended an additional month and training continued to the end of June. Twenty-one of the original group of thirty mothers and their children continued in the program during the summer extension. Most of those who did not continue participating either moved or had other summer obligations which prevented their continuing.

The preschool staff utilized the remainder of the summer to analyze the information obtained during the school year and to prepare materials and outlines for continuing the program in the coming year.

Among the most important developments was the construction of a test designed to assess the level of skill of children in the various pre-academic areas such as numbers and color naming. This pretest should prove useful in assessing the progress of Coop pupils during the coming year and provide more precise data regarding pupil progress and the effectiveness of parent training. Work was also begun on new instructional sequences for individual lesson which will allow for experimental evaluation of parent reinforcement procedures.

Figure 1. The average number of minutes spent before switching from one play area to another under task or no task conditions.

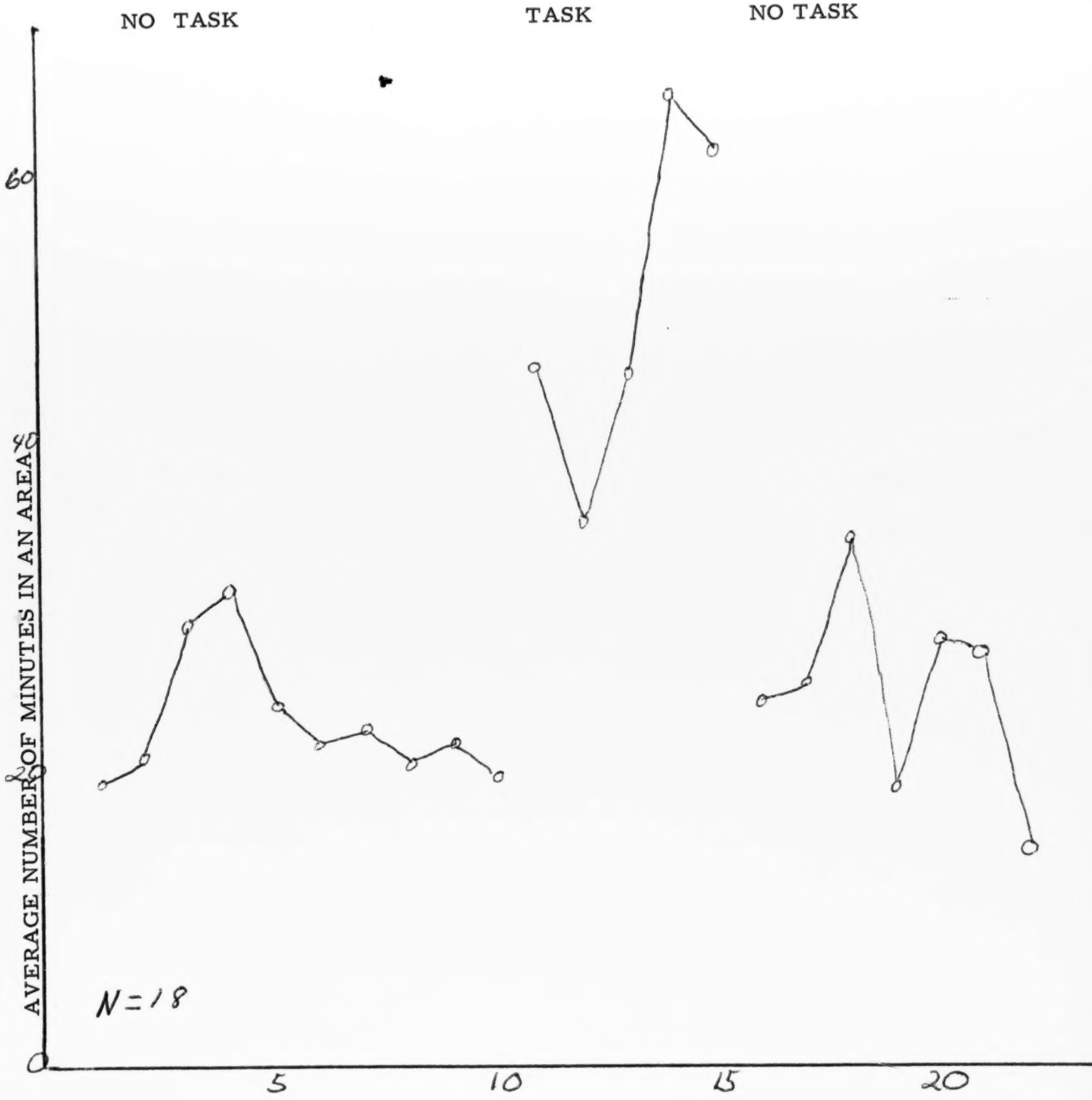
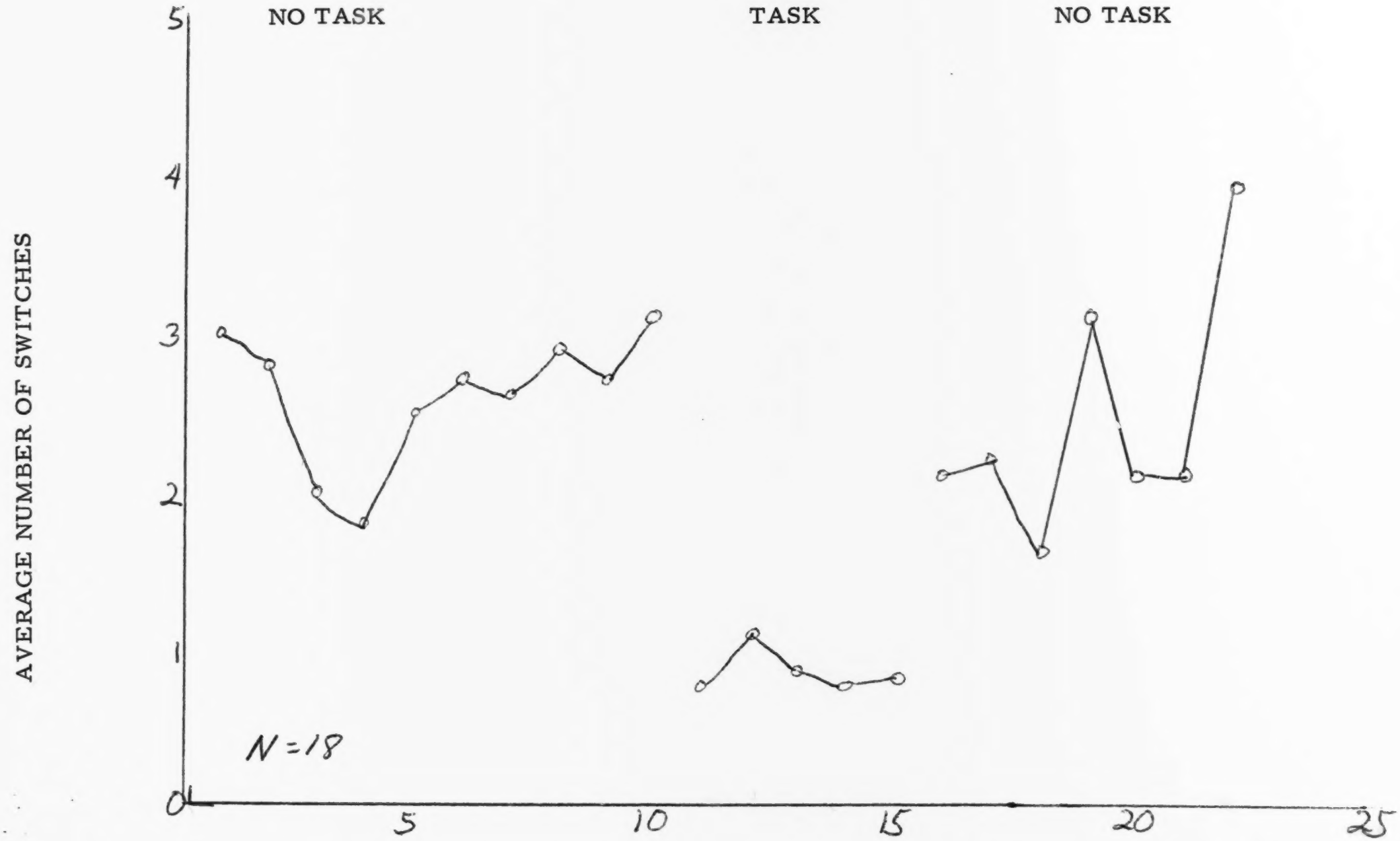


Figure 2. The average number of switches per hour from one play area to another under task or no task conditions.



DEMONSTRATION ACTIVITIES

Demonstration activities were a prominent feature of the project activities during the year. A total of 13 university students received training while participating actively in the program as teachers, research assistants, or observers. In addition to this over 233 students visited the project. This group included both graduate and undergraduate students from the following schools and universities:

Bank Street College
Western Michigan University
St. Luke's Hospital, Kansas City, Missouri
Park College
Kansas University
University of Arizona
University of Missouri at Kansas City
Hastings College, Hastings Nebraska
Kansas University Medical Center
Wyandotte County Mental Health and Guidance Clinic
University of North Carolina
Stanford University
Children's Mercy Hospital, Kansas City, Missouri

The staff pediatrician, Dr. Alice Marsh, was also able to provide training opportunities in connection with health services which were a part of the program: For example, under Dr. Marsh's supervision hearing screening tests were given by Kansas University Medical Center audiologists as part of their training in working with preschool age children.

A large number of professional persons also visited the nursery. This group included a number of prominent educators, social scientists and psychologists from widely scattered universities both within and outside the continental United States. See the previous progress reports for a representative listing of these visitors.

As described in the main body of this proposal, the training of parents within the community to use more effective teaching procedures is a main focus of the project. Other community members and lay groups have also been introduced to the project through the demonstration activities headed by Mr. Owens, the Demonstration Coordinator.

Both a series of slides and a motion picture sound film were developed during the past year to assist in carrying out the demonstration functions of the project. The film was used as an introduction to the project and was well received by a widely ranging audience of both

professional and non-professional persons. The slides, which included graphic research data, were used primarily in research presentations to professional audiences.

The sound film Spearhead at Juniper Gardens was shown by staff personnel to audiences totaling well over 1000 persons during the year. In addition copies of the film were sent to the Regional and National Offices of the Office of Economic Opportunity and to the University of Kansas Bureau of Visual Instruction. The latter office reported an almost constant demand for the Juniper Gardens film and it can only be assumed that additional hundreds of persons viewed it through these outlets.

The series of colored slides including graphic research data were a part of the numerous presentations made in college classes and at professional meetings and workshops. These professional groups included:

Regional Headstart Training Workshop for Kansas, Nebraska and South Dakota Kansas City, Kansas.

Council for Exceptional Children International Convention, New York, New York.

American Psychological Association Convention, San Francisco, California.

Follow-Through Workshop, Brooklyn Board of Education, New York, New York.

Philadelphia Follow Through Conference, Philadelphia, Pennsylvania

President's Council on Mental Retardation, Washington, D. C.

Mr. Robert Hoyt, Editorial Supervisor and Mr. Robert Gardner who produced the Spearhead at Juniper Gardens film are currently preparing a follow-up training film which will update and show in detail procedures used in the Parent Cooperative Preschool Project.

HEALTH AND SOCIAL WORK ACTIVITIES

Mrs. Mary Wilkins, Project Social Worker and Dr. Alice Marsh, pediatrician played major roles in providing for the health needs of program participants. Well-child health conferences which included all program children, their siblings and at least one parent were held regularly throughout the project year. Vision testing, dental examinations and individual hearing tests were carried out.

Dr. William Hodgson of the University Medical Center Department of Audiology assisted by supervising the hearing tests and follow-ups. All necessary immunizations were given at the well-child health conferences in cooperation with the Wyandotte City-County Health Department. Referrals for further medical needs and correction of dental problems were made through Dr. Lewis Bass of the University of Kansas Medical Center Neighborhood Children's Clinic.

In addition, Mrs. Wilkins consulted with parents regarding family or preschool connected problems and acted as a laison person between community and the project staff. Referrals were made to appropriate community agencies when problems arose which were outside the scope of project services.

CONSULTANT SERVICES

Continuous modification and improvement of the preschool program was made possible partly through the active participation of various professional consultants. Among these were Dr. Donald M. Baer, Chairman of Child Development, Department of Human Development and Family Life of the University of Kansas, Dr. Joseph Spradlin, Associate Director of Research of the Bureau of Child Research and Dr. Donald Bushell, Jr., Department of Human Development and Family Life.

Dr. Bushell played an increasingly active role in the development of the preschool program. He was added to the project staff in the summer and will assume the role of Program Director during the new project year. Dr. Risley who directed the program will continue his participation during the coming year in a consulting capacity.

Several consultants from outside the Bureau of Child Research and the University of Kansas also participated actively in the project. Among those who visited, viewed our demonstration materials and made recommendations regarding the ongoing research program and the development of further audio-visual training films were, Dr. Harold

Weiner, Director, Operant Conditioning Laboratories, National Institute of Mental Health, Washington, D. C., Mrs. Florence Harris, Director Developmental Psychology Laboratories, University of Washington, Dr. Jay Birnbaruer, University of North Carolina, Dr. Arthur Staats, University of Hawaii, Mr. James Payne, Director Headstart Program, Kansas City, Kansas Public Schools.

Laison with the community was the primary responsibility of Mr. Owens and Mrs. Wilkins. Mr. Owens met with various community groups and attended meetings of the Executive Committee of the Neighborhood Action Group which acted as a community advisory committee to the project.

Community contact was intensified since the mothers participating in the Coop Nursery were actively involved in program planning. They and Mrs. Wilkins were able to assure excellent feedback to the project directors as to how well the program was meeting the needs of both the mothers and the children as seen from the point of view of persons in the target community.

A move toward even greater control and participation will be realized in the coming year as Mrs. Barbara Hughes, a former parent in the program, takes over the role of head teacher.

Throughout the project year laison with the Regional Office was maintained through Mr. William R. Feezle, Educational Specialist, Miss Linda Carson, Headstart Consultant, and Mr. James Hearn, District CAP Supervisor. Mr. Feezle's interest and active participation in program planning was especially helpful in project development.

APPENDIX I

A PROGRAM FOR TEACHING MOTHERS TO BE CLASSROOM TUTORS

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July 1968

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TRAINING
PARENT TRAINING PROGRAM

Trained by custom, and regulated by law, parents send their children off to school to be taught, but the fact remains that the family is the dominant socialization agency in the society we have built. Educational failures in the home, as in the school, are the building blocks of social problems, and the kindergarten or first grade teacher needs to count on the availability of many complex behaviors and attitudes achieved through proper training. Dealing only with the deficits of the child now in school without simultaneously attacking the source of the difficulty can only insure the continuing need for special assistance to be given to the younger brothers or sisters of those now being served.

The most compelling conclusion which can be drawn from such observations is that the education of every child is, at the very least, a cooperative venture between parents and teachers. It has been well demonstrated that a teacher who can systematically apply behavioral principles enjoys a more effective classroom, and it is no less true that a skillful parent enjoys advantages over the parent who can control behavior only with threatened or delivered punishment. Hence, this program is being developed for the express purpose of training and assisting parents in the use of new techniques for working with their children.

The procedures described in the following document are being developed and implemented in a Head Start Center with mothers of the participating children. Most of the mothers who receive training have had little or no previous experience in a formal teaching role such as that of a teacher or teacher-aide and their own educational training generally ranges between the eighth to twelfth grades. The parent training program is developed specifically for the purpose of teaching mothers (a) to respond positively as soon as a behavior is emitted according to appropriate behavioral contingencies rather than responding negatively to a child's work, verbal interactions, play, etc.; and (b) to develop and support certain behaviors in the child by giving assistance and help to him during instruction and then slowly fading out such help as the child achieves greater proficiency and increased motivation in the learning task.

Parent training consists of a two-pronged program which consists of:

1. Individual practice teaching in a controlled setting to another adult or a child on a specific lesson with coaching by the supervisor concurrent with the actual teaching experience. Particular teaching skills which

need to be learned by the mother can be developed in this setting by the step by step coaching and assistance that is possible under the procedures used and which will be subsequently described in greater detail. This portion of the training program ideally requires approximately 2-3 weeks of practice teaching for 30 minutes per day for each mother.

2. Teaching and participation in activities in the actual classroom where the mother being trained is given responsibility for work areas such as the block area, story telling or book area, etc. Functionally, these mothers participating in the training program are responsible for the daily classroom program for the children with the supervision and assistance of the program director. Such experience provides the mothers with many opportunities to practice the skills they are learning, and to apply them in new and less structured settings with the children. It also provides the Coach with additional opportunities to observe and reinforce the appropriate performances of the mothers in their work with the children.

The following procedures describe the specific steps utilized in training parents. Included are steps required for pretesting, written instruction, teaching demonstrations, tutoring for practice teaching, and post-testing. Rules are also given for tutoring, use of tokens and other procedures to be used by both the mother to be trained and the coach.

DESCRIPTION OF PROGRAM PROCEDURES

I. Introduction:

A. Materials. To minimize confusion and to standardize measurement, use a single set of materials, which deals with only one skill, throughout the training sequence. Do not switch from a lesson on counting, for example, to one on the alphabet or clock reading. In order to illustrate the procedures described in this document, a program on counting skills will be used.

B. Setting. Pick a training location that is as isolated from the regular classroom as possible. A coatroom, the hall, or even a corner in the back of the room can be arranged as the "special" place for training. The idea is to minimize the possibility of

interruption and provide as much privacy as possible for the training team (coach, mother, and student.) Small study carrells constructed of plywood also work very effectively. Place a small table in the training area. The mother should sit across the table from the child with the coach standing nearby behind the child.

C. Pace. The following sequence of steps should occur over a period of several days. How many steps are covered on any single day will depend on the time available, progress being made, etc. Usually a half-hour per day is sufficient if the mother is engaged in other related activities during the rest of the day. Each training session should end on a positive note. That is, stop when the mother has just been successful and before the training has become aversive because it is going badly. Be sure she will want to come back for another session at the next available opportunity.

II. Training Steps:

STEP 1. PRETEST. (Before any training begins)

1. Give the mother to be trained a set of materials and have her teach them, in her own way, to two different children (not her own child) while the coach observes and takes data.

2. At the end of that day, the same mother takes the materials and a tape recorder home to teach her own child. This pre-assessment is useful in identifying which teaching behaviors the mother may already have. (A list of specific teaching behaviors is currently being developed to serve as a check list.) Also, the data from these sessions can be used as a baseline for comparison as the training progresses.

STEP 2. WRITTEN INSTRUCTION

1. A brief set of instructions and some General Rules for Teaching and Using Tokens (Appendix A) are given to the mother after she has completed Step 1. These contain guidelines for presenting materials and for responding to the child. The mother takes the instruction sheets home with her and the following day she is given a test (Appendix B) covering the procedures outlined on those sheets. This insures that she will read the materials and any points that may be unclear or misunderstood can be brought to the attention of the coach. Aspects of the instructions which

need additional clarification and discussion are then dealt with immediately until the coach is satisfied that the procedures are fully understood.

STEP 3. DEMONSTRATION.

1. The next step is to have the mother observe a demonstration of the coach teaching a child which has been recorded on video tape. During the observation of this tape the coach may point out critical behaviors as they occur, stopping or replaying the tape for questions and discussion.

STEP 4. PRACTICE LESSON

1. The mother then "teaches" another mother a sample lesson. The mother being taught responds much as a child would. She frequently makes mistakes, and in other ways presents difficulties to the mother doing the teaching so that practice can be gained in dealing with a wide range of problems which will come up in the tutorial situation. If the mother being trained has very few teaching skills, one or two more practice sessions of this type may be necessary in order for some appropriate behaviors to develop.

2. During this stage of the training, on the spot coaching procedures are also introduced by the coach. The mother doing the teaching wears an earphone attached to a small FM radio receiver. The coach, standing close enough to see the materials but far enough away that she does not distract the child, transmits cues and brief instructions via a wireless microphone. In this way, the coach is able to provide immediate feedback, encouragement, and advice without intruding upon or otherwise disturbing the tutorial relationship between the teacher and the student. This also minimizes the amount of trial and error learning which would otherwise be necessary for the teaching mother, and greatly reduces the amount of after-the-fact discussion which is normally used with student teachers.

3. It is also during this period that the mother first experiences the use of tokens as a part of the teaching procedure. The tokens are given together with praise contingent upon correct answers from the child. In order to avoid possible unproductive discussion of the tokens by the child, the mother is instructed not to mention tokens, and to ignore any comments that the child may make about them. Tokens

earned by the child may be exchanged at the end of the session for snacks, small toys, or other inexpensive items of the child's own choosing. The token system is designed to enhance the motivation of the children and there is no problem in teaching the mother to use the tokens correctly. "Token" said by the coach during the early training sessions is sufficient to remind the mother to give a token and they are soon given appropriately without a reminder.

STEP 5. TUTORING

After practice lessons with another mother, or mothers, the same material is taught to one of the chidren. Now, for the first time, other lessons following the same general pattern are introduced, and the mother teacher a number of different children over a period of several days. The coach coaches or tutors the mother through the microphone, adhering to the following rules:

1. Essentially, suggestions from the coach should follow the instruction sheets given to the mother.

2. Keep instructions as short as possible, i.e. say "Token" rather than "Give him a token" when you want the mother to do so. More discussion can follow at the end of each session if necessary.

3. Provide the mother with the response she can make to the child rather than giving her long instructions. (Explain to her that you will be doing this before the session starts.) For example, if the child is hesitating about what number comes next, say "two" rather than saying "Tell him two;" if the child has made a mistake, say "Let's start over and do it together" rather than "tell him to do it over again." It may be necessary as well to provide praise statements for the mother to give to the child.

4. Help the mother to eliminate any use of negative statements to the child in her verbal interaction with the child such as "There are not three dots;" or "Don't you remember? or "you know what that is."

5. Try to provide a cue for the mother to help her make a correct response toward the child before she has made a mistake. For example, if the child is hesitating, say "Two" so that she can prompt him before he makes a mistake and she says "No, you should have said two."

6. If the child makes a mistake, the mother should have him start over and the mother should help him with the entire response (in this case, pointing to each dot and saying each number with the child.)

7. Make sure that the child is always making the response with the mother when she is helping him. His participation contributes more to his learning than just watching her do it.

STEP 6. POSTTEST

When the mother is successfully teaching the assigned lesson with no coaching, she again teaches the two children she began with and the coach observes, taking data this time instead of coaching. These data are then compared to that taken before training. The mother also takes the tape recorder home as she did for pretesting and teaches her own child to investigate the possibility of training effects generalizing into the home.

OUTLINE OF THE TRAINING SEQUENCE

1. PRETEST: mother teaches three children (two at school, one at home) without any training.
2. WRITTEN INSTRUCTIONS, test, and discussion.
3. Video tape DEMONSTRATION of supervisor teaching a child.
4. PRACTICE LESSON with another mother, introduction of coaching and tokens.
5. TUTORING: mother teaches a number of children, continue coaching and tokens.
6. POSTTEST: mother teaches the same three children as in Step One.

II. Special Hints For This Lesson:

1. If the child starts to count the dots but isn't pointing to them, interrupt him by saying "LET'S START AGAIN AND POINT TO EACH DOT AS YOU COUNT IT. ONE, TWO ..." Just help him get started pointing and counting -- don't give more help than is needed.

2. If you can't understand him because he's not counting loud enough, interrupt him by saying "LET'S START AGAIN AND COUNT THE DOTS LOUDER."

3. As you start removing your help, start from the end of the entire response and move toward the beginning. For example, if the child is counting 4 dots you might count all four with him the first time; then just three; then two; then one; then he does it all by himself.

4. To help the child learn to point to each dot as he counts it, put your finger opposite his at the first dot and point along with him through the card. The next time you can let your finger fall slightly away from the dot you are pointing to. If he is still pointing squarely to each dot, you can pull your finger back even further next time. Keep withdrawing your support gradually until he is pointing correctly and you are merely praising his good work.

APPENDIX A

COUNTING LESSON

Materials: Cards with dots on them (numbered on the back in the order they are to be presented.
Tokens.
Tray of reinforcers (candy, small toys, etc.)

Each child you will be teaching should already be able to say the numbers 1 to 10 in order and point. This lesson is to teach him to count each dot as he points to it.

I. Procedure

1. Say "LET ME HEAR YOU COUNT FROM 1 TO 10."

   If the child hesitates, start counting with him, or hold up your fingers, one at a time, for the child to count.

   If he is not counting loud enough -- Say "LET'S TRY IT AGAIN, LOUDER."

   When he has counted from 1 to 10 in a good loud voice, Say "VERY GOOD" and give him a token.

2. Put the first card on the table in front of the child so that he can see it like this:

   Say "START HERE WHERE THE RED ARROW IS, AND COUNT FROM LEFT TO RIGHT." Point to the starting dot.

3. If the child gets the entire card right, say "THAT'S RIGHT" (or "GOOD" or "GREAT", etc.) and give him a token.

4. If the child doesn't get it right --

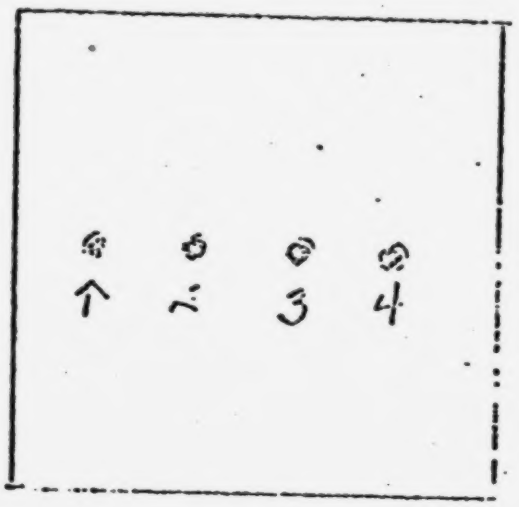
   A. Avoid negative comments such as "NO, THAT'S NOT I T."

   B. Assume that the child will continue to make the mistake unless you help him. Therefore, point to dot one and say "ONE." After the child says one and points to it, then point to dot two, etc. <u>Always point to the dots from left to right.</u>

C. When the child gets to the end of the card with your help, say "VERY GOOD" and give him a token.

D. Now let the child start over and if he hesitates, help him by pointing to the next dot. ALWAYS TRY TO HELP THE THE CHILD BEFORE HE MAKES A MISTAKE.

E. Continue helping until he can do the card right by himself and then say "THAT'S RIGHT" and give him a token.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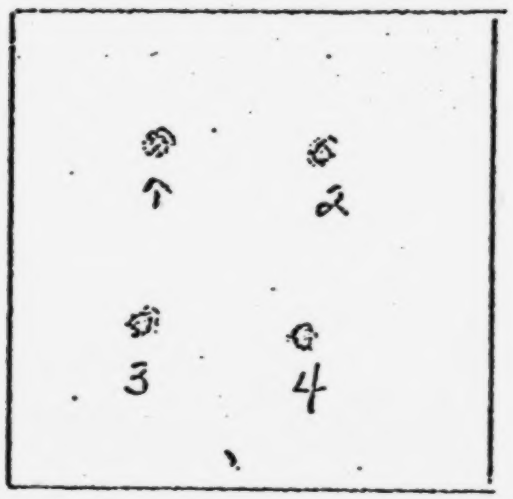
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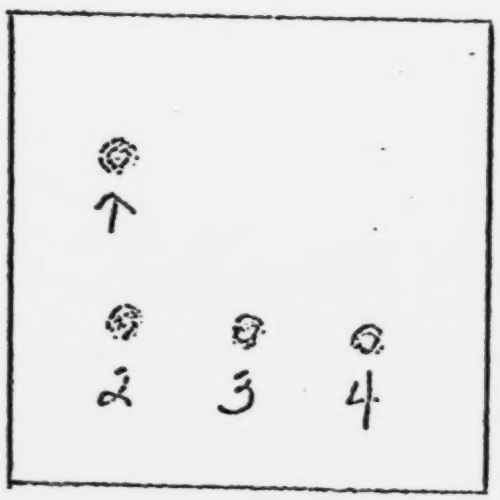
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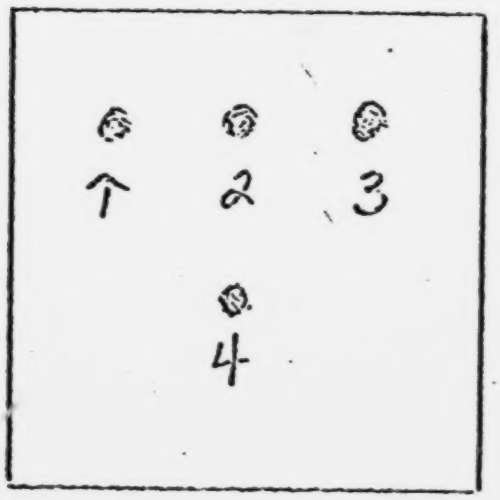
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RULES FOR THE USE OF A TOKEN SYSTEM

1. A few tokens can be held in your hand so that they can be quickly put onto the table in front of the child when he makes a correct response. Give a token and use praise at exactly the same time after each correct answer.

2. Once the child has been told that he can trade his tokens at the end of the lesson, the tokens should not be mentioned again.

3. Originally, to introduce the child to the tokens, ask a few simple questions such as "What is your name?" and give the child a token after he answers. Also, initially tokens can be given for looking at the materials, sitting up straight, etc.

4. As behavior becomes stronger, require more and more responses before a token is given.

5. If the child should start playing with the tokens, simply move them out of his reach so that they do not interfere with the lesson.

6. Let the child pick his own back-up at the end of the lesson.

7. All tokens should be turned in after each lesson, do not let the child accumulate them.

GENERAL RULES FOR TEACHING

1. PRAISE CORRECT ANSWERS OR APPROPRIATE BEHAVIOR.
   Be generous, enthusiastic, and as spontaneous as possible. Have FUN with correct answers.

2. IGNORE BEHAVIOR YOU DON'T WANT OR DON'T LIKE.
   Simply pretend it didn't happen. This is usually the way you will want to treat any behavior which interferes with learning or teaching.

3. BE SURE THE CHILD IS CAPABLE OF MAKING THE RESPONSE YOU WANT TO REINFORCE.
   For example, if you want to teach a child to count three objects by pointing to them and saying "1, 2, 3," in a loud voice, be sure he can (a) count to three; (b) talk in a loud voice; and (c) point to the objects he is to count.

4. TRY TO PREVENT THE CHILD FROM MAKING A MISTAKE.
   When a child faulters or is having trouble, help him. When he gives the right answer with your help you can praise him. The next time you can give a little less help, and so on until finally he is making the correct response by himself and you can give special praise before moving on to the next step.

5. REINFORCE A RESPONSE THAT IS PARTIALLY CORRECT.
   If a child is learning to count to five and is having trouble getting three and four in the right order, don't withhold your praise until he gets it perfect. Help him over the rough spot and say "good" when he gets three after two.

6. END EACH LESSON WITH A SUCCESS.
   Always end a session in such a way that the child will want to come back the next time he has the chance. Decide how much material you are going to cover and stop when you have completed it. If things are going well, don't keep at it just to see how far you can go before he starts making mistakes. If things are not going well (even before the end of the session) drop back a few steps and end with a series of items he can do. In this way you can end each lesson with a lot of praise.

APPENDIX B

TEST FOR THE COUNTING LESSON

1. What materials do you need?

2. What does the child have to be able to do before you can teach him this lesson?

3. The first thing that you do is place the first card in front of the child. True or False?

4. Draw how you would place the card in front of the child.

5. What do you day when you put the first card in front of the child?

6. What do you do if the child makes a mistake?

7. When do you help the child?

8. How many times do you have the child count each card?

9. What do you do if the child gets restless?

10. What do you do if the child is pointing poorly?

APPENDIX II

The Simultaneous Rehabilitation of Mothers and Their Children[1]

Don Bushell, Jr. and Joan M. Jacobson

University of Kansas

The Juniper Gardens Cooperative Preschool operates in the community center of a public housing project in Kansas City, Kansas. The classroom is much like other Head Start classrooms, except it is staffed by the mothers of the children who attend. Most of these teachers, barred from other forms of employment by deficits of education or experience, subsist on some form of relief.

The class was in session from 8:30 to 11:30 a.m. four days each week and was conducted by a group of ten mothers who alternated every three weeks with other groups of mothers. The classroom is a gymnasium which was partitioned into five activity areas with movable dividers which were set out and taken up each day so that the room could be used for other community activities in the afternoons. The enrollment consisted of 30 four and five year old children at the beginning of the past year, and stood at 21 by the end of the year.

The long range goal of the Co-op is to provide indigenous parents with the skills that will enable them to effectively operate their own poverty programs dealing with preschool education. The assumption is that if

(A paper presented at the National Convention of the American Psychological Association. San Francisco, September, 1968).

Head Start type programs can be operated by the parents of the children served, such programs will have a more noticeable impact upon the community at large.

The teaching skills sought have been broken into two categories for training purposes, but there has been a similar emphasis in each upon the importance of positive social reinforcement in work with young children. The first category, classroom management, has to do with the routine business of operating a classroom. Schedules must be devised, interest areas established and staffed, group activities need to be planned and supervised, and transitions must be accomplished from one activity to the next throughout each day.

The second category, "tutoring," deals with the development of those specific skills which will enable a mother to instruct one child at a time. To do this effectively she must be able to sequentially program appropriate learning tasks, and she must immediately reinforce the child's successive approximations toward the instructional objective. In both categories the emphasis on positive reinforcement contrasts with the typically high rates of criticism, nagging, threatening, and physical punishment, which these parents frequently employ. The tendency to rely on such negative jractices in both group and individual situations is assumed to reflect a lack of skill in more positive procedures rather than a greater predisposition toward aggression. Two studies conducted during the past semester illustrate the reason for our

confidence in this assumption.

Positive Management. The five interest areas of the classroom were each supervised by one of the mothers, while a second acted as an observer. The children were free to move from one area to another as their preferences varied, and their coming and going was recorded by the observers. The observer, stationed at the entrance to an area, noted the time at which each child entered and left the area during a one-hour period each day. Because all areas were similarly observed it was possible to reconstruct the travels of every child after each observation period. At the beginning of the year the five areas had consisted of: blocks, "creative," house, manipulative, and climbing. During the baseline observation of the children's switching behavior, an academic task was initiated in one of the areas which had previously contained climbing apparatus. The task required the children to execute various manipulations of anagram-type letters: matching, pairing upper-and lower-case letters, arranging alphabetically, and combining to match sample words. The task was varied according to the skill of the child.

During the five days of this phase, it was observed that the children switched from one area to another on the average of once every 23 minutes. To put it another way, 73% of the children averaged two or more (up to eleven) switches per hour. On the first day the letters were introduced, and 80% of the children entered the letter area. The proportion dropped during the five-day period, however, and the average per cent of the children

who had daily contact with the lesson was 46% for the entire phase.

On the sixth day the classroom procedures were altered. First it was thought desirable to reduce the rate at which the children moved from one area to another since frequently their tenure in any one activity was too short to allow for much instruction. Second, a way was sought to increase the proportion of children who might have daily contact with the letter task so that more pre-academic training could be provided. In both cases, the objective was to bring about the desired changes without resorting to commands, implied threats, or coercive practices of any type. To this end, a "switching task" was instituted.

At the beginning of the hour the children were allowed to select a ticket to enter one of the five areas. They were free to choose any area and, once entered, they could stay as long as they wished. In order to move from the first area to another, however, the rule was established that they would turn in their first ticket and then complete a small task at the "switching table" to earn a ticket for the next area they wanted to enter. The switching table contained the same materials as were found in the previously mentioned letter area and the assignments were the same. The children could switch from one area to another (including the letter area, which was still available) as often as they wished during each hour, but each switch required that a new ticket be earned by completing a brief assignment with the letters.

During the five days of the second phase, two things occurred which are shown in figure 1. The switching rate dropped. For the interval

during which the switching task was employed an average of 17% of the children switched two or more times per hour. At the same time, 82% of the children, on the average, had daily contact with the academic activity -- an increase of 36% over the average of the first phase.

During the subsequent seven days of the analysis the switching requirement was eliminated with the result that a) switching increased -- an average of 65% of the children changed areas two or more times per hour; and b) contact with the academic lesson dropped. An average of 24% of the children entered the letter area during this period -- a drop of 58% from the average of the previous period.

Thus, with no coercion, by taking advantage of the hi-rate switching and making it contingent upon the low-rate of contact with the letter task, the parent teachers executed a procedure which achieved the two management objectives. They increased the proportion of the children who had daily contact with the academic activity, and they slowed the previously rapid rate of switching so that there were increased instructional opportunities in all of the areas.

Tutoring. In addition to classroom management skills, the Co-op seeks to provide each mother with the skills necessary for instructing a single child in a tutorial situation. By direct observation, and comparison with professional "master teachers," it was found that the mothers of the children exhibited high rates of inappropriate tutoring behavior and very low rates of appropriate tutoring behavior. In such a situation, inappropriate behavior included: saying "NO" in response to

a child's statement, failing to praise the child when his response was correct or approximately correct, and introducing verbal statements which were not related to the subject at hand. This class of irrelevant statements included such phrases as: "Come on, you know that." "Sit up now, and pay attention." "I told you that." and "Think." Such statements, as a group, were called NAGS.

Appropriate teaching included the immediate delivery of praise contingent on a correct or improved response, and prompting effectively. A prompt response on the contingent given by the mother which consisted of a portion of the appropriate response expected from the child, given so as to increase the probability of a correct response. Obviously, effective prompting would also increase the probability that contingent social reinforcement could also be given.

The tutoring sessions were conducted in an adjoining room with the mother and child facing one another across a small low table. A standard lesson was used in all training sessions which consisted of an array of cards with dots on them. The lesson objective was to teach the child to count the dots using the verbal sequence, ONE, TWO, THREE, etc while simultaneously pointing to them in a left-to-right, top-to-bottom sequence. The dots had a variety of configurations, but the top left to bottom right sequence was always required.

The mothers were first asked to teach a child to count the dots and a tutoring session was then conducted without further instruction or suggestion in order to establish baseline rates of appropriate and

inappropriate teaching behavior. Written instructions were next provided which detailed the materials needed, the goal of the lesson, the entry behavior required, and contained several statements about the importance of praising correct responses. Following this the mother observed as a more experienced teacher, or another mother, conducted the lesson.

The next step had the mother "teach" another mother who intentionally made mistakes typical of those a child might make. During this session the mother doing the tutoring wore an earphone connected to a pocket FM radio. By using a wireless microphone set to an open frequency, a coach was able to talk directly to the mother who was learning to tutor without disrupting the dialog between tutor and pupil. This procedure, which we call tele-coaching, enables immediate feedback to the practicing tutor and is also used to help her anticipate appropriate moves as the lesson progresses.

First with another mother, and then with a child, the coach helps the new tutor practice prompting for and praising of correct answers. Starting this practice with another mother may have taken advantage of the fact that nagging and other negative statements do not occur at a high rate when the "pupil" is another adult. The tutoring procedure has developed over several months in a trial and error fashion. Its development is not complete and its most critical elements have not yet been experimentally isolated, but the following case of Mrs. B. will serve to illustrate the effects of the procedure's present form.

Mrs. B. was given the written instructions and, after she had read them, she attempted to take her own child through the dot lesson. The transcript of this session revealed that she had made 53 responses, none of which included praise. Sixty per cent of her responses consisted of saying, "No," nagging the child or asking questions. Thirty-eight per cent of her responses consisted of prompts. These observations somewhat weakened the argument favoring written instructions in such a situation for they did not have any detectable effect.

Prior to each of the second and third sessions, the coach again emphasized the importance of praising correct responses and urged that help be given the child before he had the opportunity to make a mistake. Brief practice sessions were held on three occasions when the coach acted as the mother's pupil. As can be seen in figure 2, no's, nags, and questions comprised only 16% of the second session and disappeared altogether in the third session. At the same time, praise, which had been totally absent during the first session, accounted for 29 and 27% of the tutoring responses during the second and third sessions respectively, as prompts increased to 42% and then to 67%.

Coaching was employed during the second session and for most of the third, during which praise was encouraged and possible prompts were suggested. The third session, however, was broken into two parts and no coaching was provided during the second part. In this final portion of the third session the mother made only 9 tutoring responses. Five of them were prompts and four of them consisted of praise. For

those 9 tutoring responses Mrs. B. received three correct answers (complete verbal sequence with accurate pointing) from the child. During the 53 largely negative tutoring responses of the first session, the child did not make any correct responses.

This work is continuing so that generalization to other lessons and situations can be programmed for Mrs. B. and her colleagues in the Co-op. There are, however, already indications that the behavioral deficits of the children of poverty can be substantially alleviated by providing their mothers with a limited set of teaching and management skills which take advantage of the effects of positive reinforcement.

FOOTNOTES

[1]The authors are grateful to Dr. Todd Risley, Mrs. Barbara Hughes, and Dr. R. Vance Hall whose cooperation and active support made these studies possible. The research was carried out as a part of the Juniper Gardens Children's Project and was partially supported by the National Institute of Child Health and Human Development: (HD 03144-01) and the Office of Economic Opportunity: (CG 8180) Bureau of Child Research, University of Kansas.

Fig. 1, Bushell and Jacobson, 1968

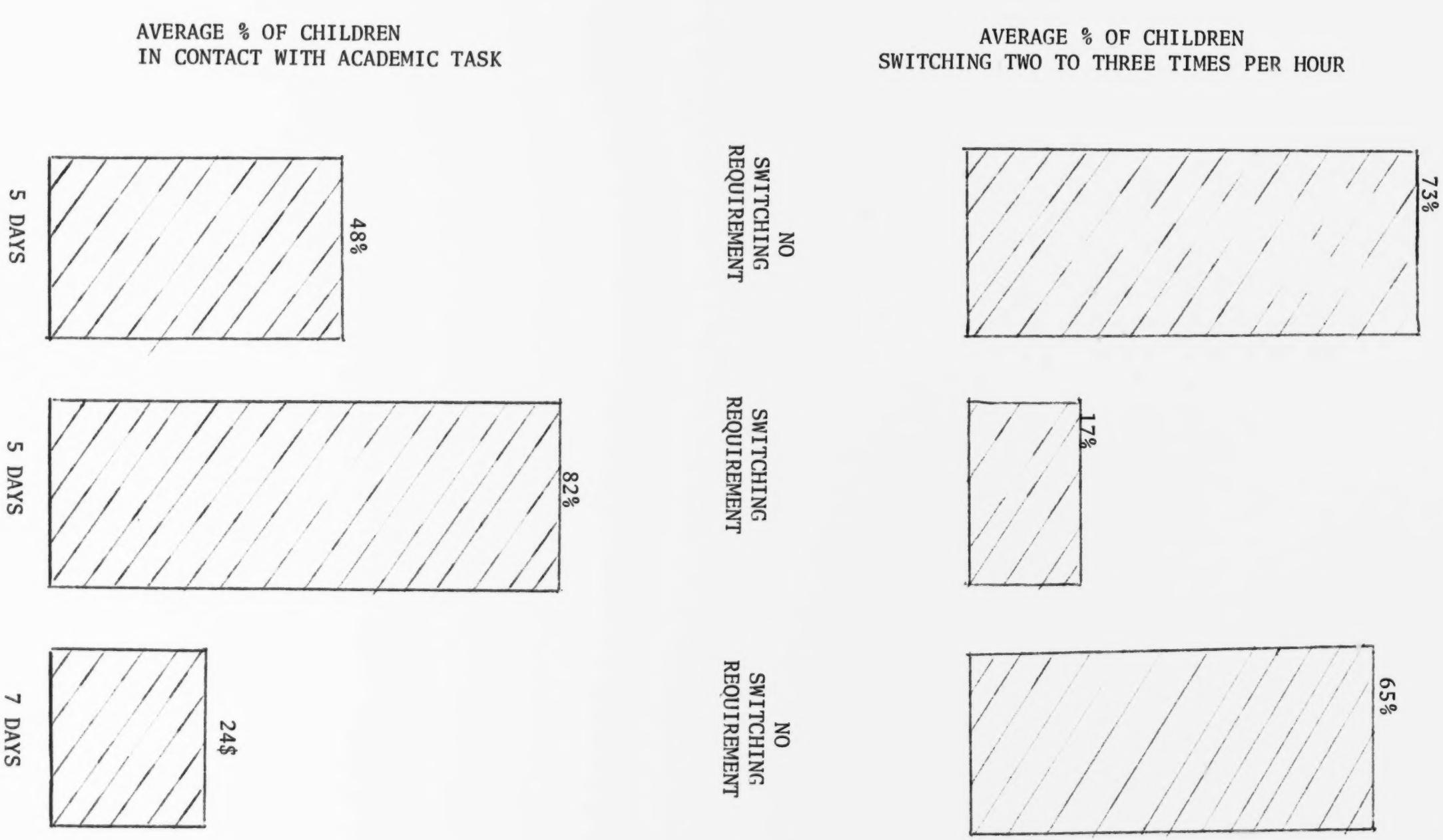

Fig. 2, Bushell and Jacobson, 1968